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a winding mechanism for rotating said spool in a winding direction while said spool is in said housing and winding cutting line onto said spool, said winding mechanism including teeth on said spool and teeth on said housing, said teeth having a shape to slide past each other when said spool is wound in said winding direction, said shape of said teeth blocking rotation of said spool with respect to said housing in said unwinding direction;

a stop connected to said housing and blocking separation of said spool from said housing during winding of cutting line by said winding mechanism, said stop including a support connected to said housing, said support rotatably holding said spool between said housing and said support.

REMARKS

Claims 1 - 40 are in this application and are presented for consideration. Claims 5, 8 and 11 have been amended. New claim 40 has been added. The claims have been amended to improve the style of the application.

The claims have also been amended to incorporate the Examiner's suggestions. Applicant thanks the Examiner for the careful reading of the claims, and for providing suggestions.

The Office Action has rejected the term "housing" as being vague and indefinite as to what disclosed structure it refers. Applicant notes that the term "housing" is well known in the art and is generally defined as an upright, a frame or other support to hold a thing in place. In the preferred embodiment of the present invention the housing, or at least a portion of the

housing, is represented by reference 3. However Applicant does not wish the claim to be limited to only the structure of reference 3. Instead Applicant desires that the term "housing" be given the broadest reasonable interpretation, see MPEP 2111.

Applicant further notes that the breadth of a claim is not to be equated with indefiniteness. It is Applicant's position that the term "housing" is clear and a person of ordinary skill in the art would not be confused by the term "housing". In fact the term "housing" is often used and accepted to define structures in many existing and allowed claims. Applicant has not indicated that the invention is to be of a different scope than the broadest reasonable interpretation of "housing". Therefore the breadth of the term "housing" is not indefinite, see MPEP 2173.04. Applicant also notes that broadening modifiers are standard tools in claim drafting in order to avoid reliance on the doctrine of equivalents in infringement actions.

If the indefiniteness rejection is based on a lack of antecedent basis, Applicant notes that the specification describes a housing on page 2 line 9, page 3 line 15, and page 6 line 20⁷ 60. ← Applicant also notes that there is no requirement that the words in the claim match those in the specification, see MPEP 2173.05(e).

The Examiner indicates that the specification may be amended to obviate this rejection. Applicant is uncertain how to amend the specification to obviate this rejection. If the Examiner has any suggestions, the Examiner is invited to contact Applicant's representative by telephone to discuss possible changes to the specification.

The Office Action also states that the term "winding mechanisms" is vague and

indefinite as to what disclosed structure it refers. Applicant notes that the claims describe what the structure of the winding mechanism is. The structure of the "winding mechanism" is described using functional language. The courts have decided, and the MPEP 2173.05(g) states "there is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper." Therefore the vague and indefiniteness rejection of the term "winding mechanism" cannot be based on the use of functional language to define the term.

The functional language is clear and understandable to a person of ordinary skill. In particular the "winding mechanism" is representative of any and all structure which performs the function of "rotating said spool in a winding direction while said spool is in said housing and winding the cutting line on to said spool".

To determine clarity and precision of language, the claim language must be analyzed in light of the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made, see MPEP 2173.02. It is Applicant's position that the functional language used to describe the winding mechanism is understandable and clear to a person of ordinary skill. A person would understand what the functional language means, and therefore the term winding mechanism represents any and all structure that performs the function described. The functional language, and therefore the term "winding means", is clear and precise enough for U.S. patent regulations. Applicant again notes that breadth is not to be equated with indefiniteness.

In the preferred embodiment, especially the embodiment of Figure 1, the winding

mechanism includes the cylindrical closing wall 13B. When the annular cover 25 is removed, cylindrical closing wall 13B of support 13, and the spool 5 is exposed. The spool 5 is still held in the housing by the edge of wall 13B, but the spool 5 and the outside of wall 13B are accessible. This outside of wall 13B can then be grasped by the operator. By turning the wall 13B and the spool 5 relative to the housing portion 3, the spool can be rotated in the winding direction, and the line can be wound on the spool. In the preferred embodiment, the operator grasps the housing portion 3 with one hand and the wall 13B/spool 5 with the other. The two parts can then be turned relative to each other while the spool is in the housing. Applicant notes that the prior art does not have this feature. If the Examiner has any suggestions of alternate claim language for structure to perform this function, the Examiner is invited to contact Applicant's representative by telephone.

The term "stop means" has also been rejected as being vague and indefinite. Applicant notes that this term is also described using functional language. As described above, the fact that functional language is used, cannot be a cause for the term to be vague and indefinite.

The functional language states that the function of the stop means is "blocking separation of said spool from said housing during winding of cutting line". Applicant finds this functional language to be quite clear and precise. A person of ordinary skill would understand the function of "blocking separation of said spool from said housing" and would understand that the term "stop means" is to be interpreted as structure which performs this function. Applicant has not indicated that the term stop means is to be interpreted otherwise. Therefore it is Applicant's position that the term "stop means" and its describing functional language is in

conformance with 35 USC § 112.

The retention members in claim 3 are represented in the preferred embodiment by elements 9, 21 and 19. These elements act against the force of the spring and prevent the spring action member from escaping. Applicant notes that claim 3 is not limited to these structures, but instead the functional language described in the retention member is to be given the broadest reasonable interpretation consistent with the specification, and equivalents thereof.

The arresting stops of claim 5 are represented in the preferred embodiment by the projections 19A. Claim 5 has been amended to set forth that the actuating member is part of the feed mechanism.

First and second stops of claim 6 are represented in the preferred embodiment by projections 19A. In the preferred embodiment of Figure 1, the top of projection 19A engages with the first group of teeth 5A on the spool, and the bottom of projection 19A engages with the second group of teeth 5B. The projections 19A are considered to be on the housing because projections 19A are rotationally fixed to the housing. This is in opposition to being fixed on the spool which is rotatable with respect to the housing.

The movable stops of claim 7 are represented in the preferred embodiment by reference 19A.

A person of ordinary skill would understand from the description and relationships of the above terms in the claims, which elements in the preferred embodiment the terms related to. This person would also understand that the claims are not limited to the preferred structures, but instead are broadly interpreted according to the functional language read in light of the

specification, and equivalents thereof.

Applicant thanks the Examiner for providing suggestions for changes to the claim language. If the Examiner has any other comments or suggestions, the Examiner is invited to contact Applicant's representative by telephone to discuss possible changes.

The claims have been rejected as being anticipated by Fabrizio, Patent No. 5,095,688.

Applicant is very familiar with '688. This reference is described in the present specification on page 7 line 12. The present invention is an improvement over '688, and the present invention addresses many of the problems found in '688.

One of the problems with the grass cutting heads of '688, is the winding of new line onto the spool. The heads of '688 have spools and other members which are spring loaded. The reason for the spring loading, is for the ease in feeding out a short section of line, when the previously used line has become worn out. During normal operation, a section of line extends from the spool and is spun very rapidly. This extending piece of line is used to abrade plant material, usually for trimming the plant material, such as grass. When this extending line is worn out, the user taps the cutting head on the ground, and this actuates the spring members and other portions of the feed mechanism to discharge or feed a new length of line from the spool. This new length of line is then used to abrade more plant materials. The spring actuated feed member, requires members to be constantly under a spring force.

In the prior art, such as '688, the feed mechanism needs to be disassembled in order to wind the spools, parts of the feed mechanism must be removed. The parts that are removed are under spring tension. Furthermore, there is no structure to hold the spool in the housing in the

prior art. Therefore in the prior art, the winding new line onto a spool, and then fastening a spool into the housing, is very difficult. Applicant notes that the line is very elastic and will tend to unravel by itself from the spool if not held. Furthermore, the feed mechanism is under spring force, and therefore assembly requires that all of the pieces be secured against the spring force during assembly. The combination of the elastic line tending to unravel, and the spring force tending to disassemble the feed mechanism, makes for a very complicated and difficult assembly of new line on to a spool.

The winding mechanism and the stop means of the present invention is structure which overcomes the problems in the prior art. In particular, the present invention as shown in Figure 1, has a housing portion 3 and a cover 25. The cover 25 is removed while the annular wall 13B of the spool support 13 retains the spool 5 inside the cutting head, and the knob 21 retains the spring 17 and the support 13 within the head. This renders the spool 5 accessible from the outside without removing it from the cutting head or the housing. This provides structure so that the spool is accessible from the outside to enable winding of the cutting line onto the spool. This allows the spool to be accessible on the outside to attach the first end of the cutting line to the spool itself, in particular the end of cutting line F is insertable into holes 5D.

In the prior art, especially '688, it is necessary to completely remove the spool from the housing in order to render the spool accessible. The removal of the spool requires that the head is opened, and disassembled, which requires that the spring 38 has to be removed. Re-assembly, especially with elastic line and the spring 38 under compression, is difficult. The present invention overcomes these problems by providing structure where the spool is

maintained inside the head, along with the spring 17 and the knob 21, but the spool is accessible by removing cover 25. Applicant notes that cover 25 is not necessary in the present invention. It is only the present invention which addresses the problems in the prior art. The present invention has structure which is not taught in the prior art, and the prior art does not provide any incentive for structure to overcome these problems.

Another difference between the present invention and the prior art, it is the function of the winding mechanism blocking unwinding of the cutting line from the spool. This feature is set forth in claim 38. In the preferred embodiment of Figure 1, the structure of the winding mechanism which blocks unwinding is represented by teeth 29, and the complementary wide teeth on the housing portion 3. These teeth are described on page 8 of the present specification, and are shaped such that the rotation of the support 13 and the spool 5 in one direction is possible, with the two different sets of teeth sliding past each other. The inclined front surface of the teeth 29, and of the complimentary teeth on the housing portion 3, cause the support 13 to be pushed away from the case portion 3, against the force of the compression spring 17. This does not require a pulling force to be applied by the user. Applicant notes in the prior art, elements 28 must be removed from receptacles 14 before element 13C can be rotated in either direction.

The structure for blocking unwinding, particularly resides in the preferred embodiment, in the shape of teeth 29 being such that rotation in the unwinding direction is prevented. When the user desires to wind new line onto the spool 5, the user simply grasps the portion 3 of the housing with one hand, and applies a rotational torque on the support 13 with the other hand.

The shape of the teeth 29 and the complementary teeth, allow the sliding of the teeth passed each other, and the winding of the spool in the winding direction. The typical user will be able to rotate the support 13 with respect to the housing by approximately 30° - 60° . He then typically has to release the support 13 and grasp it again in a different angular position. This process has to be repeated several times since the winding of the new line requires the support 13 and the spool to complete many revolutions.

Each time the user releases the support 13 in order to grasp it again in a different angular position, the teeth 29 prevent the spool from rotating in the unwinding direction. The cutting line is typically elastic, and the elasticity of the wound cutting line would spontaneously cause unwinding of the spool once the support was released, if the teeth 29 were not present.

The present invention is an improvement over '688, because new cutting line can be wound onto the spool, while the spool is in the housing. Also the operator does not have to worry about spontaneous unwinding of the spool due to the elasticity of the cutting line, or of reassembling the feed mechanism and its components which are under spring force. Applicant respectfully requests patent protection for this improvement.

If the Examiner has any comments or suggestions which would further favorable prosecution of this application, the Examiner is invited to contact Applicant's representative by telephone to discuss possible changes.

At this time Applicant respectfully requests reconsideration of this application, and based on the above amendments and remarks, respectfully solicits allowance of this application.

Respectfully submitted
for Applicant,

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Enclosed: Marked-Up Version of the Claims
Petition for One Month Extension of Time

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SHOULD ANY OTHER FEE BE REQUIRED, THE PATENT AND TRADEMARK OFFICE
IS HEREBY REQUESTED TO CHARGE SUCH FEE TO OUR DEPOSIT ACCOUNT 13-
0410.

5. (Amended) Grass-cutting head as claimed 1, wherein:

said feed mechanism comprises stop teeth integral with the spool and arresting stops engaging with said stop teeth to define angularly offset positions of the spool;

said feed mechanism includes an actuating slider is provided to engage and disengage of said stop teeth and said arresting stops causing an angular step by step rotation of said spool, the action of the actuating slider being opposed by a spring-action member.

8. (Amended) Grass-cutting head as claimed in claim 7, wherein:

said housing includes a first housing portion, through which extends an axial hub of a rotary drive, and said spool being placed in said first housing portion;

a support ~~{for}~~ supporting said spool, said support being mounted on said axial hub and elastically pressed against said first housing portion by said spring-action member,

axially elongate openings in said support, through which pass said moveable stops carried by said actuating slider and engage with the teeth on the spool; and

an annular cover closes said housing and extends around the support for said spool.

11. (Amended) Grass-cutting head as claimed in claim 8, wherein said support for said spool has a cylindrical wall around which the spool is placed and said support also includes a supporting collar ~~{for}~~ supporting said spool.